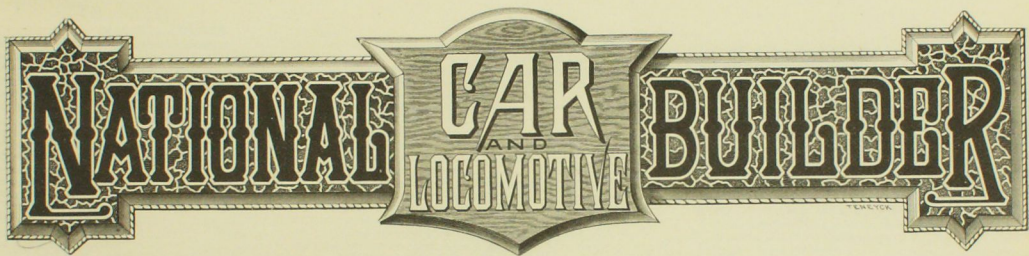


EIGHTEENTH VOLUME..

FROM JANUARY TO DECEMBER, 1887, INCLUSIVE.

M625.105

N21



DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

R. M. VAN ARSDALE, Proprietor.

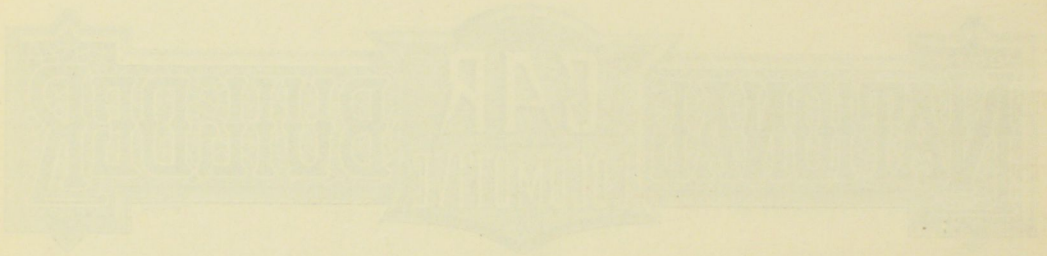
JAMES GILLET, }
ANGUS SINCLAIR, } Editors.

PUBLICATION OFFICE:

MORSE BUILDING, NEW YORK.

EIGHTHENTH VOLUME

FROM JANUARY TO DECEMBER 1882 INCLUSIVE



DEPOSITED IN THE OFFICE OF THE CLERK OF THE SUPREME COURT

IN THE CITY OF NEW YORK

THIS 10TH DAY OF JANUARY 1883

ATTEST

MOSES BURNING NEW YORK

INDEX TO EIGHTEENTH VOLUME.

MISCELLANEOUS.		MISCELLANEOUS.	
Page	Page	Page	Page
Accidents to Trainsmen, Report of Committee on	80	Freight Car Couplers, Report of Executive Committee.....	88
Alabama Car Works	17	Freight Cars, Report on Standard Sizes of Lumber.....	107
American Brake Co. and Burlington Tests	85	Freight Train Brakes, Committee on Tests.....	39
American Brake and the St. Thomas Accident.....	133	Freight Train Brakes, Report of Committee on.....	80
American Engineering Progress	10	From Fireman to Engineer	110
Automatic Brakes Preferable to Brakemen	148	Goddell Dry Air Refrigerator Car.....	44
Automatic Stove—Fire Extinguisher	37	Goodwin Dump Car	28, 40
Axles, Fast Turning of	11	Heating Air by Friction for Car Heating.....	35
Bailey, Jackson, Death of	113	Heating Cars for the Coming Winter	153
Baldwin's Output of Locomotives in 1880	27	Hidden Brake Danger	49
Barbarism in Iowa	131	High Speed Locomotive	49
Beauty in Machine Design	40	High Pressure Steam, Advantages of Using.....	123
Boiler Inspection	32	House for Railroad Men in New York	154
Boiler Inspections, Manner of	49	Indurated Fiber Ware	55
Boston & Lowell Rolling Stock	1	Hot Brine in Heating Pipes	45
Brake Committee Meeting	27	How Queen Victoria Travels	1
Brake Experiments	48	Importance of Little Things	70
Brake Tests at Burlington	48	Indicators, Information from	45
Brakes, Rules Governing Use of	53	Incurable Fiber Ware	55
Brooks, Horatio G., the Late	69	Inordinate Use of Sand	127
Brotherhood of Locomotive Engineers	151	Joy Valve Gear on American Railroads	107
Brotherhood of Locomotive Engineers—Charity Calls	67	Julien Electric System of Car Lighting.....	78
Burlington Brake Tests, Committee Circular.....	67	Large and Small Wheels	82
Burlington Freight Brake Tests	72	Leslie Rotary Snow Plow	37, 63
Cable System for Street Cars	81	Letter-Ballot Announcements of M. C. B. Standards.....	155
Canadian Pacific Locomotives	97	Liquid Fuel	90
Car Coupler, Baker & Prescott's	96	Lumber for Freight Cars, Standard Sizes of.....	107
Car Couplers, Committee of Experts on	121	Locomotive, A Good	99
Car Couplers on Chicago, Burlington & Quincy	127	Locomotive Cylinders, Proportions of	49, 62, 109
Car Heating	30	Locomotive Cylinders, Proportions, Report on.....	92
Car Heating and Lighting on Cinn. River R. R.	35	Locomotive Grates, Improvement in	84
Car Heaters, Experiments with	35	Locomotive Matters in New South Wales	121
Car Heating Apparatus, Young's	109	Locomotive, Performance of an Old Time	117
Car Interchange, A Question of	109	Locomotive Preparation, Report on	94
Car Lighting, Julien Electric System	78	Locomotive Proportions	91
Car Lumber, Demand for	10	Locomotive, Slipped	79
Car Roofs, Report on Construction	89	Locomotive Throttle Valves	105
Car Service, Per Diem Charge for	82	Locomotives, English and American	21
Car for Supplying Heat and Light	37	Locomotives in Canada, Cost of Building	145
Car Wheel Works, Road & Brown	10	Locomotives, Liquid Fuel for	84
Cars, Annual Scarcity of	128	Locomotives, Power of	128
Central Railroad Club	40	Locomotives with Large Nozzles	128
Central Railway Club	109	Machine Shops, Night Work in	117
Chicago, Milwaukee & St. Paul Rolling Stock	8	Master Car-Builders' Association, Committees of.....	50
Chicago & Northwestern Rolling Stock	137	Master Car-Builders' Association, Annual Convention.....	80
Chilled Wheel Manufacturers' Association	113	Master Car-Builders' Club	8, 30, 35, 48
Christie Brake Shoe, Dimensions of	96	Master Car-Builders' Club, Reorganization of	14
Coal Delivery to Locomotive Tenders, Report on	94	Master Car and Locomotive Painters' Convention.....	141
Color Blindness Among Railroad Employes	140	Master Car and Locomotive Painters' Association.....	33, 110
Colorado Midland Rolling Stock	117	Master Mechanics' Association, Annual Convention.....	91, 103
Connecticut's Valve with Cab	109	Master Mechanics' Association Circulars	120, 132
Continuous Car Heating	52	Master Mechanics' Association, Committees of.....	50, 104
Coroner's Verdict on the Republic Accident	40	Master Mechanics' Association, Popularity of.....	108
Cushing, Geo. W., Goes to the Reading	65	Mercury	79
Cylinder Packing, Report of Committee on	103	Mexican Treatment of Train Wreckers	79
Dangerous Car	137	Minnesota & Northwestern R. R.	10
Dining Car Service, Chicago & Alton	124	New England Railroad Club	4, 20, 34, 40, 50, 80, 130, 151, 160
Disputed Crossings	84	New South Wales, Locomotives in	121
Draft Appliances, Best Proportions of	57	New York and Boston Line Cars	133
Draw-Gear for Non-Automatic Couplers	90	New York Railroad Club	105
Driver Brakes at Burlington	85	Northern Pacific, Rules for Westinghouse Brake.....	102
Drivers Brake for Consolidation Engines	40	Old Colony Railroad Matters	104
Driving Wheels, Effect of Heavy	10	Old Colony R. R. Rolling Stock Equipment.....	5
Driving Wheels and Tires, Weight of	10	Old Time Locomotive, Performance of	117
Editorial Interdiction	56	Omaha Railway Club	27
Educate Engineers	48	One-Sided Sympathy	99
Electric Lighting and Windmills	136	Origin of the Engine Truck	38
Engine and "Locomotive"	48	Our Street Works, Description of	55
Engineering and Shop Notes	4, 38, 71, 130, 144	Our Electric Railroads, Where are They?	113
Engineers, A Lesson to	21	Paint Making Works, Sherwin Williams Co.....	106
English and American Locomotives	21	Palace Stock Cars on Grand Trunk	105
Enginemen Discussing Canadian Locomotives	104, 120, 136	Pan Handle Locomotives	27
Etchings of Rolling Stock Material	119	Parry, Charles T., Death of	101
Evading the Law by Under-Billing	108	Passenger Cars, Arched Roofs on B. & A. Road.....	96
Exhibits at the Conventions	112	Passenger Cars, Care of, while in Service	124
Extension Smoke House, Discussion on	91	Passenger Cars, New Narrow Gauge	100
Extension Front, Don't Like the	24	Passenger Cars, Painting of	97
Fast Run with a Common Locomotive	11	Passenger Train Warned and Lighted without Fire.....	97
Fibrous Steel	138	Physical Tests of Material	158
Flooding the River	39	Pipe Unions	101
Fraudulent Attempts to Obtain Passes	41	Piston Rod and Valve Stem Packing, Report on.....	139
Fretton, Laws of	44	Pittsburgh Locomotive Works	10
		Poor's Manual for 1887	140
		Porter, H. K. & Co., Locomotives	17, 21
		Present Cost of Rolling Stock	122
		Proportions of Locomotive Cylinders	62
		Proposed Standard Freight Car Truck	27
		Protect the Check Valve Opening	140
		Questions on Steam Engineering	158
		Railroad Announcements	127
		Railroad Machinery Notes from Cuba	149
		Railroad Operation in State of New York	115
		Railroad Operating, Promoting Safety in	52
		Railroad Reading Rooms	44
		Railroading Under Difficulties	44
		Railway Disinfectants	118
		Railway Paint Shop, Management of	155
		Reorganization of Master Car-Builders' Club	14
		Repairing and Wiping by Contract	49
		Reverse Lever, Improving	48
		Rochester Car Wheel Co.'s New Works	39
		Roundhouse Repairs and Roundhouse Foremen	141
		Runaway Train	51
		Safe Heating of Cars	107
		Sandbagging the Railroads	55
		Sawdust Carvings	55
		Scarlett Car Chair	55
		Scenery of Our Own Continent	44
		Sight-Feed Lubricator Patent	27
		Sleeping Car Incident	152
		Slide Valves, Dynamometer Applied to	11
		Soule, R. H., Promotion of	40
		St. Petersburg Exhibition	155
		Standard Axle, Demand for a New	107
		Steam and Motive Power	45, 58, 70, 103, 116
		Steel Car, Model of	79
		Street Cars, Growth of Cable System	81
		"Strong" Locomotive, Report of Tests	130
		Swing of Engine Truck on Sharp Curves	38
		Tests of Westinghouse Freight Brake	162
		Testing a Car Heater	40
		Throttling Steam in Locomotives, Effect of	81
		Train Restancies, Records of	109
		Type of Couplers, Committee Circular	109
		Use of Steel in Russia	75
		Vanderbilt's House for Railroad Men	154
		Vestibule Cars	62, 115
		Western Railway Club	7, 14, 20, 35, 47, 50, 135, 150, 158
		Westinghouse Air Brake Tests	138, 152
		Westinghouse Brake, Perfected	96
		Westinghouse Freight Brake Trail	162
		Whitworth, Joseph	30
		Whistling, Waste of	78
		Wonderful Escape from Wreck	66
		Wonderful Memory	70

SHOP NOTES.

Brooks Locomotive Works	131
Central Iowa Railway	4
Central Pacific	79
Chicago, Burlington & Quincy	72
Chicago, Rock Island & Pacific	71, 143
Delaware & Hudson Canal Co.	145
Grand Trunk Railway	145, 165
Illinois Central	38
Lake Shore & Michigan Southern	130
Pan Handle Railroad Office	38
Pittsburgh, Cincinnati & St. Louis	17, 38
Pittsburgh Locomotive Works	38
Shenepack Locomotive Works	144
Wagner Palace Car Works	144
Union Pacific Railway	4

PARAGRAPHS.

Accidents on Pennsylvania Railroad	129
Alloy for Making Brass Hard and Ductile	112
Alloy for Making Brass Hard and Ductile	112
American Locomotives, English Engineer on	50
Bee Line Monthly Performance Sheet	101
Brooks Locomotive Works	139
Candle Power, Measuring	1
Car Brakes on Suburban Trains	114

	PAGE.		PAGE.		PAGE.
Central Iowa Compound Locomotive.....	101	Locomotive, Old Colony Railroad.....	32	Horses and Electricity.....	129
Chicago & Eastern Illinois.....	57	Locomotive Reducing Valve for Car Heating.....	143	How We a Fair Field for Compound Locomotives ?.....	139
Chicago & Northwestern Railway.....	143	Locomotive for Suburban Traffic, Illinois Central.....	148	How the Country's Benefactors are Rewarded.....	139
Chilled Car Wheel, Improved Form of.....	143	Locomotive, Standard Freight, Grand Trunk Railway.....	146	Improved Car Service System Needed.....	111
Cooke Locomotive Works, Interchangeability.....	57	Machine for Grinding Punches and Dies.....	170	Inevitable and Preventable Heat Losses.....	41
Dean Guides on Concord R. R.....	71	Mackenzie's Tire Indicator.....	95	Interstate Commerce Commission.....	13
Delaware & Hudson Canal, Mogul Locomotives.....	143	McIntosh's Cross-Head Mower.....	142	Leander Carey, Death of.....	54
Driving Wheel Centers, Old Colony R. R.....	1	McKen Automatic Safety Coupler.....	42	Legislation Against the Car Store.....	168
Elevated Railway Traffic, New York City.....	143	New Band Re-Sawing Machine.....	100	Lighting of Passenger Cars.....	64
Ensign Manufacturing Co.....	143	New Double Cylinder Endless Bed Surface.....	170	Local Travel in New York and Brooklyn.....	108
"Gaharets," Pittsburgh, Cincinnati & St. Louis.....	43	Northern Pacific System of Car Heating.....	158	Locomotive Proportions.....	69
Grand Trunk Through Passenger Cars.....	71	Oil Burning Fire Box.....	96	Locomotives Built in 1885.....	152
Horse Car for Manchester Jubilee Exhibition.....	71	Passenger Car Truck, Grand Trunk Ry.....	122	Locomotives in Canada, Cos. of Building.....	153
Initial Stresses of Bolts.....	136	Passenger Car, Chicago, Burlington & Quincy.....	134	Locomotives, Petroleum Burning.....	111
Kerosene, Using for Cleaning Piston Packing.....	71	Passenger Locomotive, Old Colony Railroad.....	32	Master Car-Builders' Convention.....	69
Killed and Injured on New York State Railroads.....	115	Playes' Grindstone Expansion Cam.....	130	Master Mechanics' Association, New Constitution.....	85
Limited Train, New York and Chicago.....	43	Pullman Vestibule Cars.....	52	Master Mechanics' Circulars.....	140
Locomotive Engineers, Licensing.....	71	Radii Bar, Proper Length of.....	50, 80	Master Mechanics' Convention.....	68, 90
Locomotive, Express, with Single Drivers.....	121	Railroad Tie, Machine for Adzing.....	109	Master Mechanics' Report.....	127
Locomotives, Old Colony R. R.....	5	Rockers Side-Bearing and Truck Check.....	122	Minneapolis Convention of M. C. B. Association.....	67
Martin Anti-Fire Car Heater, Test of.....	43	St. Paul & Duluth R. R. Shops.....	78	Monitor Roof Passenger Cars.....	54
Metrie System of Measurement.....	112	Self-Feeding Carriage Edging Saw.....	123	Money Making Cars.....	168
Michigan Car Co.....	108	Small's Graduated Boring Gauge.....	123	Motive Power Accounts.....	67
Michigan Central R. R. Cars.....	143	Snow Flanger, Central Iowa R. R.....	37	Piston Valves in Locomotives.....	13
New Cars of New York Central Central R. R.....	129	Standard Freight Locomotive, Grand Trunk Railway.....	146, 147	Practical Practices, Pride of Purdy.....	153
New Mileage in 1887, Predictions of.....	125	Standard Rapid Feed Planing Machine.....	125	Preventable Accidents not Necessarily Crimes.....	83
New System of Heating Cars, Bryant's.....	129	Steam and Motive Power, Diagrams.....	77	Protection of Watches.....	155
Northern Pacific Decapod Locomotives.....	43	Strong Locomotive, Tests of.....	130	Pure Steel is Good Steel.....	155
Nut Lock and Washer, Noble's.....	122	Swing of Engine Truck for Sharp Curves.....	38	Railroad Clubs.....	54, 140, 167
Ohio Falls Car Co., Suburban Passenger Cars.....	101	Thomas Car Brakes and End Stop.....	39	Railroad Building for the Current Year.....	108
Old Colony, Cost of Coal for Locomotives.....	101	Tire Dressing Shoe, Meehan's.....	39	"Railroad" "Railway".....	13
Old Colony Railroad Locomotives.....	85	War Engine "General".....	79	Relative Performance of Westinghouse and Carpenter Brakes.....	140
Patents for 1886.....	43	Wear of Tires, Device for Measuring.....	32	Resistance of Trains.....	110
Pennsylvania Railroad Rail Section.....	128	Westinghouse New Triple Valve.....	74	Rights and Wrongs of Mechanical Officers.....	124
Phila., Wilmington & Baltimore Locomotive.....	128	Wheel Defect Gauge.....	74	Running Locomotives without Regular Crews.....	124
Philadelphia & Reading Iron Tubular Cars.....	84	Wilson's Spark Arrester.....	137	Safety Appliances for Trainsmen.....	113
Process for Making Whitewood Tough.....	14			Smash-up Pictures.....	69
Railroad Bridges in New York State.....	115			Smoke Consumers, Where they are Wanted.....	129
Railway Cars in Russia, Religious.....	1			Steam Brakes as Auxiliary to Air Brakes.....	140
Refrigerator Cars on Michigan Central.....	3			"Strong" Locomotive, Both on the.....	153
Relief Association, Baltimore & Ohio.....	3			Suburban Railroad Rolling Stock.....	111
Rio Disaster—Claims for Damages.....	67			Sunday Labor on Railroads.....	111
Rome, Watertown & Ogdensburg, Accident on.....	101			Tests of the Strong Locomotive.....	139
Scale Remover on Central Iowa.....	37			The Baltimore & Ohio Holoocaust.....	35
Scale Remover and Preventer on Central Iowa.....	13			The Proposed Standard Freight Car Truck.....	29
Schenectady Locomotive Works.....	10, 71, 107, 123, 143			Timber Famine, No Danger of.....	54
Single Exhaust Nozzles on C. B. & Q.....	71			Traveling Engineer.....	83
Standard Steel Castings Co.....	71			Unreliant Parts of Rolling Stock.....	54
Stone Bridges on Pennsylvania R. R.....	71			Voices from the Car Store.....	54
Street Cars in India.....	71			William Woodcock, Death of.....	13
Street Car Line, Longest in the World.....	71				
Swineford, C. A., Chicago & Northwestern.....	67				
The Cyclone in Mechanical Operations.....	129				
Tidwell Freight Car Truck.....	123				
Tiffany Refrigerator Cars.....	128				
Timber Supply, Estimated.....	143				
Train Robbers in Texas.....	143				
Twenty-Four O'clock on Union Pacific.....	27				
Union Switch and Signal Co.....	148				
Wagon Manufacturing Co.....	143				
Webb's Locomotives Run Without Tender.....	143				
Westinghouse Brake on Northern Pacific.....	24				
Whitner Automatic Safety Brake.....	55				
Whitney, A. & Sons.....	55				

ILLUSTRATIONS.

Adams' Dust-Excluding Oil Box..... 98

American Continuous Draw-Bar..... 106

Automatic Air Brakes, Instruction Card for..... 53

Automatic Air Supply Regulator..... 53

Automatic Hollow Chisel Car Mortising and Boring Machine..... 112

Axle and Journal Box for 60,000-lb. Cars..... 98

Bauchman's Patent Roller Tube Cutter..... 127

Blast Pipe, Webb's Form of..... 52

Boiler Washing and Testing Apparatus..... 52

Box Car, New York, Lake Erie & Western..... 18

Brake Power on Western Division of Grand Trunk..... 101

Buffalo Forge Co.'s Heating Forges..... 62

Burlington Brake Course, Line and Profile..... 73

Car Mortising and Boring Machine..... 56

Combination Meter Saw Table..... 55

Continuous Heating for Cars on Northern Pacific..... 51

Crack Pin Collars, New Method of Fastening..... 96

Cylinder Counter Pressure, Braking Effect of..... 107

Cylinder Boring and Facing Machine..... 70

Diagrams of an Old Time Locomotive..... 117

Double Driving Wheel Lathes..... 100

Drop Bottom Coal Car Construction..... 128

Emery Wheel Surface..... 120

Etchings of Rolling Stock Material..... 119

Extended Front on F. & M. V. R. R..... 104

Fire Extinguisher and Derailment Brake..... 49

Fish Patent Equalizing Car Truck..... 114

Flatter Iron Planer..... 113

Freight Car Doors..... 36

Freight Car Iron Forgings..... 36

Freight Car Truck, Pennsylvania R. R..... 28

Freight Car Truck, Susquehanna & Jewett's..... 63

Fruit Car, Illinois Central R. R..... 118

Glazing Packing, New Method of..... 61

Heating, Setting and Removing Tires, Device for..... 96

Hickey Snow Flanger..... 22

Hydraulic Car Wheel Lift, Missouri Pacific..... 161

Improved Automatic Knife Grinder..... 14

Improved Timber Planing Machine..... 9

Indicators, Information from..... 6

Johann's End-Stop and Journal..... 97

Locomotive Boiler, Northern Pacific R. R..... 11

Locomotive Driving Wheels, Device for Truing..... 9

Locomotive, Consolidation, N. Y. L. E. & W. R. R..... 70

Locomotive, Light Consolidation, Canadian Pacific..... 69

COMMUNICATIONS.

About the Hannibal & St. Jo..... 65

Brakes, Hancock and Steel-McJones..... 101

Brake Shoes, Wear of..... 10, 24

Car Floors, "Deadeners" for..... 24

Car Heating—A New Suggestion..... 64

Car Heating by Steam..... 64

Tire Dressing Shoe, Meehan's..... 39

Chicago, Kansas & Nebraska Ry..... 80

Cylinder Condensation, by D. H. Clark..... 149

Cylinder Counter-Pressure Brake..... 65

Education of Engineers..... 64

Emphatic and Forceful Language Off..... 64

Encourage Education of Engineers..... 132

Engine Mileage—Letter from "Charles Dickens"..... 9

Experimental Tests of Railroad Material..... 64

Extension Smoke-Boxes..... 26, 50, 65, 80

Extended Smoke-Box and Smoke Consumers..... 132

Finlay's Central Support Truck..... 132

Formula for Cylinder Proportion..... 165

Freight Car Doors..... 36

Handling a Locomotive Carefully..... 36

How to Level a Locomotive with Worn Tires..... 124

Locomotive Performance in Florida..... 24

Locomotive Performance in Texas..... 9, 36

Locomotive Speed Indicators..... 132

Locomotives, Chicago, Milwaukee & St. Paul..... 24

Locomotives Compared..... 50, 65, 97

Our Craftsmen..... 36

Questions About Locomotives..... 25

Radii Bar, Proper Length of..... 50, 80

Reported Air Brake Failures..... 132

Rotary Steam Snow Shovel..... 80

Stark Car Hot..... 50

Steam from Hot Water..... 96

Steam Used in Car Heating..... 65

The "Strong" Locomotive, by W. H. Booth..... 149

Use of the Indicator, Compounding..... 25

Valve Motion, Canadian Pacific Locomotive..... 132

Vestibule Cars Not a New Idea..... 80

West Shore Locomotives and Tenders..... 165

Whitworth, Joseph..... 30

EDITORIALS.

A Brief Retrospect..... 83

A Perplexing and Anomalous Law..... 83

Air Brake Failures, Reported..... 125

American Locomotive, Another Champion of the..... 111

Annual Scarcity of Cars..... 107

Anti-Magnetic Watch Shield..... 129

Boiler Accidents..... 84

Brakes for Six-Wheel Trucks..... 107

Burlington Brake Tests..... 82

Business for Scale Makers..... 126

Car Coupler Decision..... 125

Car Heating by Steam..... 64

Causing Train Accidents by Rule..... 113

Chateaufort Trestle Disaster..... 120

Cause Cars in England..... 28

Cylinder Condensation, Discovery of..... 153

Dangers of Double Heading..... 63

Demand for a New Standard Axle..... 87

Difficulty of Exchanging Ignorance for Knowledge..... 61

Directory of Railroads..... 110

Double and Single Nozzles..... 55

Economy of Steam..... 22

Electric Street Car Motors..... 14

English Railroads, Cost of..... 13

Feeling the Sleeping Car Porter..... 41

For and Against Extension Smoke-Boxes..... 41

Freight Car Brake Tests..... 11

Freight Train, How can it be made More Remunerative..... 6

Freight Train, The Dangerous..... 70

Grand Army of Clanks..... 85

NEW PUBLICATIONS.

Car-Building Supplement..... 126

Eames Vacuum Brake Catalogue..... 84

Locomotives and Locomotive Building in America..... 27

Master Car-Builders' Association, Annual Report..... 55

Master Mechanics' Association's Annual Report..... 41

Running Locomotives without Regular Crews..... 124

Poor's Directory of Railroad Officials..... 137

Hand, McNally & Co.'s Freight Car Truck..... 41

Steam Engine Catechism, Grimshaw's..... 169

The Painter's Hand Book..... 156

Universal Tinker and Amateurs' Assistant..... 169

TRADE NOTICES.

Adams & Westlake Co., Chicago..... 169

Ajax Metal Co..... 70

Allen Paper Car Wheel Co..... 70

Byram & Co. Iron Works..... 14

Cincinnati Corrugating Co..... 14, 28, 42

Clayton Air Compressor Works' Catalogue..... 14

Crosby Steam Gage & Valve Co..... 156

Danacrus Bronze Co., Pittsburgh, Pa..... 42

Dayton Manufacturing Co.'s Catalogue..... 14, 160

Drake & Wiers, Asphalt Car Roofing..... 56

Eames Vacuum Brake Co..... 140

Egan Co., Cincinnati, O..... 42, 70, 142

E. Gould & Eberhardt, Newark, N. J..... 55, 70

Goodell & Waters, Philadelphia, Pa..... 42, 84, 114

Hill, Clarke & Co..... 169

Holton Cable Manufacturing Co..... 136

Hoyt Froe Co..... 142

Indurated Fiber Ware..... 55, 114, 128, 156

Isaacs' Patent Flanged Locomotive Truck Broom..... 14

Jos. Dixon Crebille Co..... 156

Leonard & Ellis, Valvoline Oil..... 138

Lewis & Fowler Manufacturing Co..... 114

London, Perry & Orton..... 114

Magnolia Anti-Friction Metal..... 42

Manfield, A. K..... 169

Merchant & Co., Philadelphia..... 100, 142

Mississippi Glass Co., St. Louis, Mo..... 42

National Car Roofing Co..... 70

National Paint Works..... 78, 156

National Tube Works Co..... 100

Page Belting Co., Concord, N. H..... 42, 114, 142, 160

Pedrick & Ayer's Calendar Tablet..... 14

Peerless Manufacturing Co..... 27

Phillip S. Justice & Co.'s Boiler Tubes..... 141

Phosphor-Bronze Smelting Co., Catalogue..... 56, 84, 156

Pittsburgh Butler Scale Resolvent Co..... 111

Prospect Machine & Engine Co.'s Catalogue..... 14, 27

Scarritt Car Chair..... 55

Scarritt Furniture Co..... 169

Sieber Cylinder Oil Cup Co..... 141

Spear Safety Store for Cars..... 142

Standard Steel Casting Co..... 169

Stewart & Mathison Mfg. Co., Philadelphia..... 169

Thayer Manufacturing Co..... 128

Universal Radial Drill..... 66

Wainwright Manufacturing Co..... 114